

No.

200000346



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Nobartis Seeds, Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC FULFILLMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR OFFERING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE FOREGOING PURPOSE, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. (34 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

WATERMELON

'90-4228'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this fifteenth day of February, in the year of our Lord two thousand one.

Attest:

Alan R. Post

Acting Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

[Signature]
Secretary of Agriculture

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE
(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF OWNER NOVARTIS SEEDS, INC.		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME 90-4228	3. VARIETY NAME -
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country) 600 N. Armstrong Pl. Boise, ID 83704		5. TELEPHONE (include area code) (208) 322-7272	FOR OFFICIAL USE ONLY PVPO NUMBER 200000346 FILING DATE 09/25/00
		6. FAX (include area code) (208) 378-6625	
7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION (corporation, partnership, association, etc.) Corporation	8. IF INCORPORATED, GIVE STATE OF INCORPORATION Delaware	9. DATE OF INCORPORATION 2-25-75	FILING AND EXAMINATION FEES: \$ 2705.00 DATE 09/25/00 CERTIFICATION FEE: \$ 320.00 DATE 12/13/00
10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. (First person listed will receive all papers) Charleen Orthel 600 N. Armstrong Pl. Boise, ID 83704			
11. TELEPHONE (include area code) (208) 327-7246	12. FAX (include area code) (208) 378-6625	13. E-MAIL charleen.orthel@seeds.novartis.com	14. CROP KIND (Common Name) Watermelon
15. GENUS AND SPECIES NAME OF CROP Citrullus lanatus		16. FAMILY NAME (Botanical) Cucurbitaceae	17. IS THE VARIETY A FIRST GENERATION HYBRID? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
18. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse) a. <input checked="" type="checkbox"/> Exhibit A. Origin and Breeding History of the Variety b. <input checked="" type="checkbox"/> Exhibit B. Statement of Distinctness c. <input checked="" type="checkbox"/> Exhibit C. Objective Description of Variety d. <input checked="" type="checkbox"/> Exhibit D. Additional Description of the Variety (Optional) e. <input checked="" type="checkbox"/> Exhibit E. Statement of the Basis of the Owner's Ownership f. <input checked="" type="checkbox"/> Voucher Sample (2,500 viable untreated seeds or, for tuber propagated varieties, verification that tissue culture will be deposited and maintained in an approved public repository) g. <input checked="" type="checkbox"/> Filing and Examination Fee (\$2,450), made payable to "Treasurer of the United States" (Mail to the Plant Variety Protection Office)		19. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD AS A CLASS OF CERTIFIED SEED? See Section 83(a) of the Plant Variety Protection Act <input type="checkbox"/> YES (If "yes", answer items 20 and 21 below) <input checked="" type="checkbox"/> NO (If "no," go to item 22)	
		20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
		21. IF "YES" TO ITEM 20, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED? <input type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input type="checkbox"/> CERTIFIED	
22. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U. S. OR OTHER COUNTRIES? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. (Please use space indicated on reverse.)		23. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT (PLANT BREEDER'S RIGHT OR PATENT)? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF YES, PLEASE GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. (Please use space indicated on reverse.)	
24. The owners declare that a viable sample of basic seed of the variety will be furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate. The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act. Owner(s) is(are) informed that false representation herein can jeopardize protection and result in penalties.			
SIGNATURE OF OWNER Charleen Orthel		SIGNATURE OF OWNER	
NAME (Please print or type) Charleen Orthel		NAME (Please print or type)	
CAPACITY OR TITLE Customer Quality Management Coordinator	DATE 9/13/00	CAPACITY OR TITLE	DATE

INSTRUCTIONS

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GENERAL: To be effectively filed with the Plant Variety Protection Office (PVPO), ALL of the following items must be received in the PVPO: (1) Completed application form signed by the owner; (2) completed exhibits A, B, C, E; (3) for a seed reproduced variety at least 2,500 viable untreated seeds, for a hybrid variety at least 2,500 untreated seeds of each line necessary to reproduce the variety, or for tuber reproduced varieties verification that a viable (in the sense that it will reproduce an entire plant) tissue culture will be deposited and maintained in an approved public repository; (4) check drawn on a U.S. bank for \$2,450 (\$300 filing fee and \$2,150 examination fee), payable to "Treasurer of the United States" (See Section 97.6 of the Regulations and Rules of Practice.) Partial applications will be held in the PVPO for not more than 90 days, then returned to the applicant as unfilled. Mail application and other requirements to Plant Variety Protection Office, AMS, USDA, Room 500, NAL Building, 10301 Baltimore Avenue, Beltsville, MD 20705-2351. Retain one copy for your files. All items on the face of the application are self explanatory unless noted below. Corrections on the application form and exhibits must be initialed and dated. DO NOT use masking materials to make corrections. If a certificate is allowed, you will be requested to send a check payable to "Treasurer of the United States" in the amount of \$300 for issuance of the certificate. Certificates will be issued to owner, not licensee or agent.

Plant Variety Protection Office

Telephone: (301) 504-5518

FAX: (301) 504-5291

Homepage: <http://www.ams.usda.gov/science/pvp.htm>

ITEM

- 18a. Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method; (2) the details of subsequent stages of selection and multiplication; (3) evidence of uniformity and stability; and (4) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified
- 18b. Give a summary of the variety's distinctness. Clearly state how this application variety may be distinguished from all other varieties in the same crop. If the new variety is most similar to one variety or a group of related varieties:
- (1) identify these varieties and state all differences objectively;
 - (2) attach statistical data for characters expressed numerically and demonstrate that these are clear differences; and
 - (3) submit, if helpful, seed and plant specimens or photographs (prints) of seed and plant comparisons which clearly indicate distinctness
- 18c. Exhibit C forms are available from the PVPO Office for most crops; specify crop kind. Fill in Exhibit C (Objective Description of Variety) form as completely as possible to describe your variety.
- 18d. Optional additional characteristics and/or photographs. Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, etc.
- 18e. Section 52(5) of the Act requires applicants to furnish a statement of the basis of the applicant's ownership. An Exhibit E form is available from the PVPO.
19. If "Yes" is specified (seed of this variety be sold by variety name only, as a class of certified seed), the applicant MAY NOT reverse this affirmative decision after the variety has been sold and so labeled, the decision published, or the certificate issued. However, if "No" has been specified, the applicant may change the choice. (See Regulations and Rules of Practice, Section 97.103).
22. See Sections 41, 42, and 43 of the Act and Section 97.5 of the regulations for eligibility requirements.
23. See Section 5.5 of the Act for instructions on claiming the benefit of an earlier filing date.

22. CONTINUED FROM FRONT (Please provide the date of first sale, disposition, transfer, or use for each country and the circumstances, if the variety (including any harvested material) or a hybrid produced from this variety has been sold, disposed of, transferred, or used in the U.S. or other countries.)

NONE

23. CONTINUED FROM FRONT (Please give the country, date of filing or issuance, and assigned reference number, if the variety or any component of the variety is protected by intellectual property right (Plant Breeder's Right or Patent).)

NONE

NOTES: It is the responsibility of the applicant/owner to keep the PVPO informed of any changes of address or change of ownership or assignment or owner's representative during the life of the application/certificate. There is no charge for filing a change of address. The fee for filing a change of ownership or assignment or any modification of owner's name is specified in Section 97.175 of the regulations. (See Section 101 of the Act, and Sections 97.130, 97.131, 97.175(h) of the Regulations and Rules of Practice.)

To avoid conflict with other variety names in use, the applicant must check the variety names proposed by contacting: Seed Branch, AMS, USDA, Room 213, Building 306, Beltsville Agricultural Research Center-East, Beltsville, MD 20705. Telephone: (301) 504-8089.

Public reporting burden for this collection of information is estimated to average 30 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Agriculture, Clearance Officer, OIRM, AG Box 7630, Jamie L. Whitten Building, Washington, D.C. 20250. When replying, refer to OMB No. 0581-0055 and form number in your letter. Under the PRA of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

The U.S. Department of Agriculture (USDA) prohibits discrimination in its programs on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, and marital or familial status. (Not all prohibited bases apply to all programs). Persons with disabilities who require alternative means for communication of program information (braille, large print, audiotape, etc.) should contact the USDA Office of Communications at (202) 720-2791. To file a complaint, write the Secretary of Agriculture, U.S. Department of Agriculture, Washington, D.C. 20250, or call (202) 720-7327 (voice) or (202) 720-1127 (TDD). USDA is an equal opportunity employer.

S&T-470 (6-98) designed by the Plant Variety Protection Office with WordPerfect 6.0a. Replaces STD-470 (03-96) which is obsolete.

Exhibit A
Origin and Breeding History of the Variety

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Inbred 90-4228 was developed at the Novartis Seeds' Research Center in Naples, Florida as a result of conversion of diploid inbred 90-4329 (a proprietary inbred line of Novartis) to a tetraploid parent. The conversion from 2n to 4n was accomplished using a modified colchicine protocol consisting of the following steps:

1. In August of 1996, seeds of 90-4329 were soaked in a .01% colchicine solution for 48 hours. During this time, air was bubbled continuously into the solution.
2. After treatment, seeds were sown in a planting medium in M150 Speedling flats, and watered.
3. Flats with the putative tetraploids were placed in a greenhouse, watered periodically, and the subsequent emerged seedlings were grown to transplant stage (28-32 days).
4. During the course of seedling development, obvious diploids (non-convertants) were removed using morphological differentiation as a selection gauge.

The following is the chronological order of development of this line:

<u>Generation</u>	<u>Season/Year</u>	<u>Description</u>
T0	Fall 1996	At transplant stage, 62 putative tetraploids were moved to the field, grown to maturity and self-pollinated at flowering. Non-converted diploids and chimeriactic plants were not pollinated. After fruit development and at full flesh maturity, fruit from the putative tetraploids was harvested, cut open and seeds examined, and counted to confirm ploidy conversion. Fruit with typically thick, blunt-tipped seeds, and usually fissured seed coats were selected to plant the T1 generation.
T1	Spring 1997	Fourteen putative tetraploid selections were transplanted to the field, pollinated, and selected for stable tetraploid expression. One of the selections (4041-1) was considered superior to seven others in terms of fruit phenotype and seed set. This seed was used to plant the T2 generation.
T2	Fall 1997	Within a population of 12 tetraploid plants in row 5009, 4 single plant selections were made for uniform fruit shape and largest size. One of selections, labeled -1, was considered the best on the basis of better seed produceability (more than 60 seeds/fruit). The remaining plants in row 5009 were used to create the first triploid hybrids. Seed from 5009-1 was used to plant the spring of '98 crop (T3) generation.
T3	Spring 1998	A sample of seed from 5009-1 was sown and transplanted to row 6005 with a stand of 16 plants. Three single plant selections were made within this population with the seed being bulked, after inspection. Based upon favorable performance with the triploids made with this tetraploid, 150 seeds were released to the production department in June, for foundation seed production. This seed was the T4 generation, uniform and stable for phenotype. This seed was given the lot number N 1145 and assigned the inbred code 90-4228.

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T4 Summer 1998 The 150 seeds of inbred 90-4228 were transplanted to a screen enclosure at Novartis Seeds' Research center in Woodland, Calif. Plants were self-pollinated. The fruits were harvested with 0.4 kg of seed produced. This seed was the T5 generation and assigned the lot number: 98C-78. This lot was used to produce stock seed of inbred 90-4228 in Chile in the 1998-1999 production season.

Exhibit B

200000346

Novelty Statement for Inbred 90-4228

Watermelon inbred 90-4228 is unique based upon the following characteristics:

1. It is a tetraploid, with $N=22$
2. The fruit are globe-shaped with a dark green rind and lighter green stripes
3. It is resistant to fusarium wilt, race 1 and anthracnose, race 1
4. Seeds are very dark brown in color with typically blunt ended shape.
5. Flesh color is dark red. Royal Horticultural Color Chart # 45C.

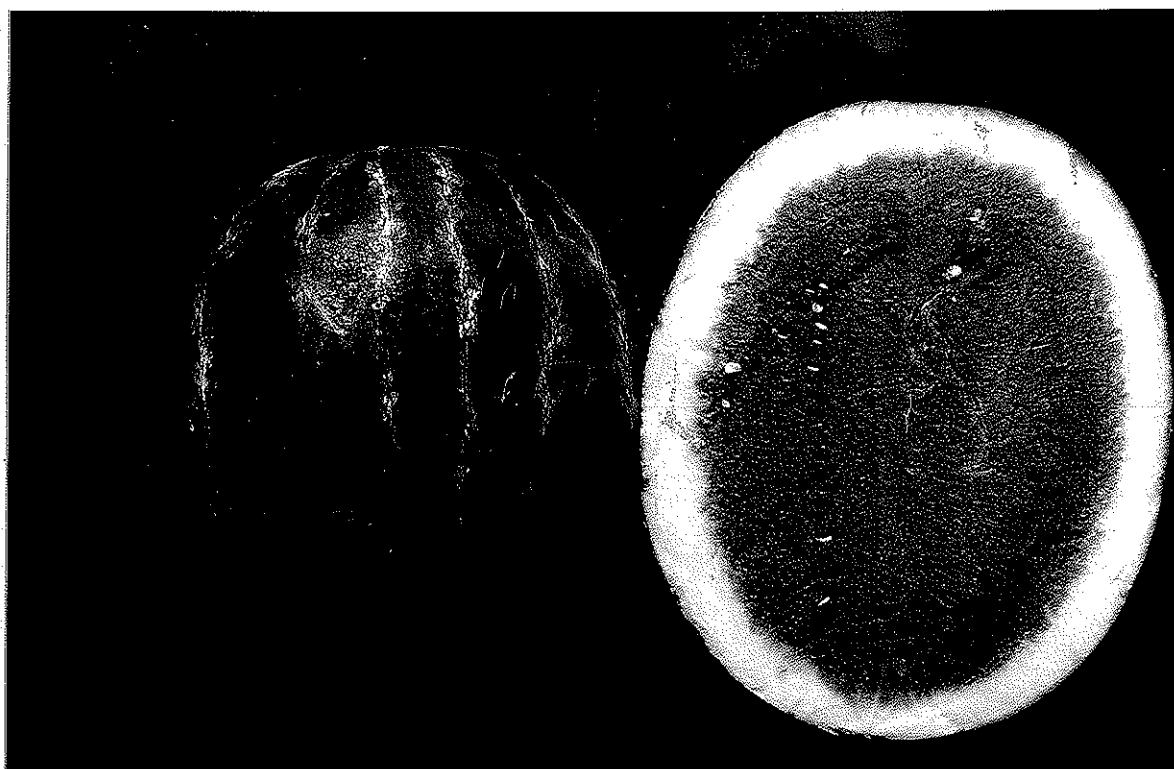
There are no commercial tetraploid varieties or parental tetraploids which have the same rind coloration as 90-4228. Using the Royal Horticultural Society Color Charts, the rind color of 90-4228 is: 136A. The stripes on this rind are 145C. It is similar in coloration to the seeded variety Petite Sweet but Petite Sweet is a diploid variety and 90-4228 is a tetraploid line.

There are several tetraploid female inbreds used in the production of triploid hybrids but essentially all of these have a Charleston Grey rind type (no stripes) or a Sugar Baby (dark green with dark green stripes) rind.

No statistical data is deemed necessary since the rind color uniqueness of this line coupled with the shape and ploidy level are the qualitative distinguishing features.

Attachment 2

A photograph of the watermelon inbred: 90-4228 follows:



OBJECTIVE DESCRIPTION OF VARIETY
WATERMELON (*CITRULLUS LANATUS*)

INSTRUCTIONS: See Reverse.

NAME OF APPLICANT(S)

NOVARTIS SEEDS, INC.

ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code)

P.O. Box 4188

600 N. Armstrong Pl.

Boise, Idaho 83711-4188

FOR OFFICIAL USE ONLY

PVPO NUMBER

VARIETY NAME OR TEMPORARY
DESIGNATION

90-4228

Place the appropriate number that describes the varietal character of this variety in the boxes below.
Place a zero in first box (e.g., or) when number is either 99 or less or 9 or less.

1. TYPE:

1 = OBLONG

2 = ROUND LARGE

3 = ROUND SMALL (icebox)

2. AREA OF BEST ADAPTATION:

1 = SOUTH

2 = NORTHEAST/NORTHCENTRAL

3 = SOUTHWEST

4 = MOST AREAS

3. EMERGENCE TO ANTHESIS:

NO. OF DAYS EARLIER THAN

1 = CHARLESTON GREY

NO. OF DAYS LATER THAN

2 = OTHER (Specify)

Crimson Sweet

4. POLLINATION TO MATURITY:

NO. OF DAYS EARLIER THAN

1 = CHARLESTON GREY

NO. OF DAYS LATER THAN

2 = OTHER (Specify)

Crimson Sweet

5. PLOIDY:

1 = DIPLOID

2 = TETRAPLOID

3 = TRIPLOID

6. PLANT

Cotyledon:

1 = FLAT

2 = FOLDED

1 = MONOECIOUS

2 = ANDROMONOECIOUS

Number of flowers per plant at first fruit set:

STAMINATE

PISTILLATE

PERFECT

NO. OF MAIN STEMS
AT CROWN

7. STEM:

1 = ROUND

2 = ANGULAR

MM. DIAMETER AT SECOND NODE

1 = GLABROUS

2 = SCABROUS

3 = PUBESCENT

4 = BRISTLED

CM. VINE LENGTH \div NO. OF INTERNODES (At last harvest)

8. LEAF:

1 = OVATE

2 = OBOVATE

3 = ROUND

1 = LONGER THAN WIDE

2 = LENGTH-WIDTH EQUAL

3 = WIDER THAN LONG

Dorsal Surface:

1 = SMOOTH

2 = PUBESCENT

Ventral Surface:

Color:

1 = LIGHT GREEN

2 = GRAY GREEN

3 = MEDIUM GREEN

4 = DARK GREEN

9. FLOWER (At first fruit set):

Staminate: CM. ACROSS

Perfect: CM. ACROSS

Color:

1 = LEMON YELLOW

2 = YELLOW 3 = ORANGE

FORM GR-470-19 (REVERSE)

10. MATURE FRUIT:

☒ 1 = ROUND ☐ 2 = OVAL ☐ 3 = CYLINDRICAL ☐ 3 ☐ 0 CM. LONG ☐ 2 ☐ 8 CM. DIAMETER AT MIDSECTION
☐ 1 ☐ 3 KG. AVERAGE WEIGHT ☐ 1 ☐ 1 INDEX = LENGTH \div DIAMETER X 10
☐ 1 1 = SMOOTH ☐ 2 = SLIGHTLY GROOVED ☐ 3 = DEEPLY GROOVED
☐ 2 Color: 1 = SOLID (One color) ☐ 2 = STRIPE ☐ 3 = MOTTLE/NET
☐ 4 Primary Color: ☐ 1 = YELLOW GREEN (Desert King) ☐ 2 = LIGHT GREEN (Charleston Grey) ☐ 3 = MEDIUM GREEN (Sugar Baby)
☐ 2 Secondary Color: ☐ 4 = DARK GREEN (Florida Giant) ☐ 5 = OTHER (Specify)

11. RIND:

☐ 3 1 = TENDER ☐ 2 = BRITTLE ☐ 3 = TOUGH ☐ 1 ☐ 0 THICKNESS MM. BLOSSOM END
☐ 1 ☐ 5 THICKNESS MM. SIDES

12. FLESH:

☐ 1 1 = CRISP ☐ 2 = SOFT ☐ 1 1 = COARSE-FIBROUS ☐ 2 = FINE-LITTLE FIBER
☐ 5 Color: 1 = YELLOW ☐ 2 = ORANGE ☐ 3 = PINK ☐ 4 = RED ☐ 5 = DARK RED
☐ 1 REFRACTOMETER % SOLUBLE SOLIDS OF JUICE (Center of fruit) ☐ 1 ☐ 2 % CHECK VARIETY (Specify) Chas. Grey
☐ 1 ☐ 0 % HOLLOW HEART ☐ 0 % PLACENTAL SEPARATION ☐ 0 % TRANSVERSE CRACK

13. SEED:

☐ 1 ☐ 0 MM. LONG ☐ 7 MM. WIDE ☐ 2 MM. THICK
☐ 1 ☐ 4 INDEX \div LENGTH \div WIDTH X 10 ☐ 7 ☐ 0 GM. PER 1000 SEED ☐ 1 ☐ 1 ☐ 0 NO. SEED PER FRUIT
☐ 7 Color: 1 = WHITE ☐ 2 = WHITE-TAN TIPPED ☐ 3 = WHITE-PINK TIPPED ☐ 4 = TAN ☐ 5 = GREEN
☐ 6 = RED ☐ 7 = DARK BROWN ☐ 8 = DARK BROWN MOTTLED ☐ 9 = BLACK ☐ 10 = MOTTLED BLACK

14. DISEASE RESISTANCE: (0 = Untested, 1 = Susceptible, 2 = Resistant)

☐ 2 ANTHRACNOSE (Race ☐ 1) ☐ DOWNY MILDEW ☐ 2 FUSARIUM WILT, Race 1 ☐ GUMMY STEM BLIGHT
☐ SQUASH MOSAIC ☐ WATERMELON MOSAIC ☐ POWDERY MILDEW ☐ CUCUMBER MOSAIC
☐ OTHER (Specify)

15. OTHER RESISTANCE: (0 = Untested, 1 = Susceptible, 2 = Resistant)

☐ SUNBURN ☐ ROOT KNOT ☐ OTHER (Specify)

16. NAME A VARIETY THAT MOST CLOSELY RESEMBLES THAT SUBMITTED: None

Days maturity		Fruit shape	
Plant vigor		Rind color	
Fruit Size		Flesh quality	

REFERENCES:

1. Frey, K. J. 1966. Plant Breeding - Symposium. 1 ed. Iowa State University Press.
2. Ware, G. W. and McCollum, J. P. 1968. Producing Vegetable Crops. Interstate Printers & Publishers, Inc. Danville, Illinois.
3. Whitaker, T. W. and Davis, G. N. 1962. Cucurbits. Interscience Publishers, Inc. New York.
4. Nickerson's or any recognized color fan should be used to determine the plant colors of the described variety.
5. *Royal Horticultural Society Color Charts

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Exhibit D

Additional Description for Watermelon 90-4228

Watermelon inbred 90-4228 is a unique tetraploid line for use in creating high quality seedless watermelon hybrids. It's novelty is based on the exterior rind which is dark green with light green stripes or what is commonly referred to as an Allsweet rind appearance, shape which is globe, disease resistance (fusarium wilt, race 1 and anthracnose, race 1) and the exceptional fruit quality that this line confers to it's triploid progeny in terms of deep red flesh color, high soluble solids and firm texture.

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

EXHIBIT E
STATEMENT OF THE BASIS OF OWNERSHIP

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S) NOVARTIS SEEDS, INC.	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER 90-4228	3. VARIETY NAME -
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP, and Country) 600 N. Armstrong Pl. Boise, ID 83704	5. TELEPHONE (include area code) (208) 322-7272	6. FAX (include area code) (208) 378-6625
7. PVPO NUMBER		200000346
8. Does the applicant own all rights to the variety? Mark an "X" in appropriate block. If no, please explain. <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		

9. Is the applicant (individual or company) a U.S. national or U.S. based company? If no, give name of country		<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
10. Is the applicant the original owner? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO If no, please answer one of the following:		
a. If original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. national(s)? <input type="checkbox"/> YES <input type="checkbox"/> NO If no, give name of country		
b. If original rights to variety were owned by a company(ies), is(are) the original owner(s) a U.S. based company? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO If no, give name of country		

11. Additional explanation on ownership (if needed, use reverse for extra space):

See attachment "Exhibit E"

PLEASE NOTE:

Plant variety protection can be afforded only to owners (not licensees) who meet one of the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.
2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.
3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definition.

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 10 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

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To file a complaint, write the Secretary of Agriculture, U.S. Department of Agriculture, Washington, D.C. 20250, or call 1-800-245-6340 (voice) or (202) 720-1127 (TDD). USDA is an equal employment opportunity employer.

STD-470-E (07-97) (Destroy previous editions).

Electronic version designed using WordPerfect InForms by USDA-AMS-IMB.

EXHIBIT 18E

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Statement of the Basis of Application Ownership

The variety 90-4228 is the result of conversion of diploid inbred 90-4329 (a proprietary inbred line of Novartis) to tetraploidy and subsequent selection and fixation for genetic stability. Variety 90-4228, for which Plant Variety Protection is hereby sought, was developed by a team of scientists, all employees of Novartis Seeds, Inc. By agreement between the employee and Novartis Seeds, Inc., all rights to any invention, discovery, or development made by the employee while employed by Novartis Seeds, Inc. were assigned to Novartis Seeds, Inc. with no rights of any kind retained by the employee.

Name Statement:

Variety 90-4228 has not been sold under any other name, in the U.S. or any foreign country.

Date of First Release:

Variety 90-4228 has not been released.